CLAIMS

We claim:

1. A stimulation electrode comprising an electrode surface having at least a partial surface region covered with a coating of titanium nitride, wherein the titanium nitride coating has a larger surface on its side remote from the electrode surface than the region of the electrode surface covered with the titanium nitride, wherein the titanium nitride is covered with at least one oxidation protection layer on its side remote from the electrode surface, and wherein at least a side of the oxidation protection layer facing the titanium nitride is substantially non-porous.

2. The stimulation electrode according to claim 1, wherein the at least one oxidation protection layer reduces an impedance of the stimulation electrode coated with titanium nitride, or alternatively increases the impedance to a maximum value which is smaller than an impedance of the uncoated stimulation electrode.

3. The stimulation electrode according to claims 1, wherein the at least one oxidation protection layer has a layer thickness in a range of about 100 nm – 5 μm.

4. The stimulation electrode according to claim 3, wherein the layer thickness of the at least one oxidation protection layer is about 100 nm – 2 μm.

5. The stimulation electrode according to claim 4, wherein the layer thickness of the at least one oxidation protection layer is about 500 nm – 2 μm.

6. The stimulation electrode according to claim 1, wherein the at least one oxidation protection layer is biocompatible.

7. The stimulation electrode according to claim 1, wherein the at least one oxidation protection layer comprises at least one element selected from the group consisting of iridium, platinum, gold, and carbon.

8. The stimulation electrode according to claim 2, wherein the at least one oxidation protection layer comprises at least one material selected from the group consisting of an oxide, a carbide, a nitride, and a polymer.

9. The stimulation electrode according to claim 8, wherein the at least one oxidation protection layer comprises iridium oxide.

10. The stimulation electrode according to claim 1, wherein the at least one oxidation protection layer is formed by a process selected from the group consisting of a PVD process and a CVD process.

11. The stimulation electrode according to claim 1, wherein the at least one oxidation protection layer is formed by a process selected from the group consisting of spraying, dipping, electrodeposition, and a sol-gel process.

12. The stimulation electrode according to claim 1, in the form of a human implantable electrode.

13. The stimulation electrode according to claim 12, wherein the electrode is a cardiac pacemaker electrode.

14. The stimulation electrode according to claim 12, wherein the electrode is a neuro-stimulation electrode.

15. The stimulation electrode according to claim 12, wherein the stimulation electrode is operated as an anode.